

A Guideline for Data Collection of Component Reliability Database for Korean NPPs

가

150

가 (PSA: Probabilistic Safety Assessment)

가 . 3,4 1,2

PSA , PSA (Generic

Database)

가

– , TR (Trouble Report), MCR ,

Abstract

The component reliability database and initiating event database are required in PSA (Probabilistic Safety Analysis). We have applied a generic database to the PSA (Probabilistic Safety Assessment) for the Korean NPPs (Nuclear Power Plant) except for Kori 3&4 and YGN 1&2, since there is no specific component reliability database. Therefore we are developing the plant-specific component reliability database for domestic NPPs. In this paper, we concentrate on providing a guideline for data collection that is a step for development of the component reliability database. We describe various data sources for component reliability analysis – TR (Trouble Report), daily operation report, surveillance test report and component operation time report – and an effective data collection method from them.

1.

가 (PSA: Probabilistic Safety Assessment)

가 . 1
3,4 1,2 , PSA
[1]. PSA ,
PSA (Generic Data)

[2]. ,
가 , 가
가 3

가 4

가 .
3

가

가

[3].

가가

가

2.

가

- 1) PSA
- 2) (MTTR: Mean Time To Repair) (Out of Service Time)
(Maintenance Frequency) (Maintenance Optimization)

- PSA
-
-
-
-
- ()

-
-
-
-
-
-
-
-
-

, , 가

3.

1) TR (Trouble Report)

TR 가

. TR

TR

TR

-1

-1. TR

Action	가 , , 7가
Year	
No	1
Equip_No1/Euip_No2/ Equip_No3	/ /
Issue_Date	
Descriptio	
SD_Possibi	가
Priority	
Oper_Mode	
Appli_Date	
Appro_Date	
Work_Statu	
Analy_Code	
Analy_Caus	
Compli_Date	

TR

Descriptio, Priority, Work_Statu, Analy_Caus

가

TR

가

,

•

TR

가
TR

가 TR

TR

가

•

(Issue_Date), (Appli_Date), (Appro_Date)
가 , TR 가 TR 가 A ,

가

가

TR

TR

•

TR

가

2)

MCR

3

가

	• /	•
	• • • • •	•
	• /	•
	• • • • •	•
/	• /	•
TR	• TR NO • / •	• , TR • TR cross check
	•	• • • TR
	•	• 가 •

•

가 .

가 .

•

가 가 .

3

1 , 2 , 3

1

가 1 2 , 3

1

•

가 ,

3

가

가 .

TR

(cross check)

•

MCR

3

가

MCR

(RO, TO, EO)

가

가 .

3) MCR

(RO, EO, DB)

(EO) , MCR 1 (RO), 2 (TO),
MCR
가 . MCR 가
MCR

4)
가)

가 , 가
가

)
MCR (RO, TO, EO)

MCR

4.

가

1)

TR

가

- System Functional Description
System Functional Description

- P&ID

●

MCR

●

가

2)

가

가

●

가

●

-
-

5.

1) (, TR)

가 ,
TR
TR 80%
. TR

2) (Cross check)

TR 가 (cross check)
TR

가

3) (MCR ,)

MCR 가
14 AFWS 28
MCR

가

TR

4)

가

TR

가

TR

가

1

MCR

(critical),

(degraded)

(incipient)

5)

6.

3,4

1,2

PSA

가

()

3,4

PSA

RCM

가

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2. KEPCO, Volume 1 UCN Units 3&4 Final Probabilistic Safety Assessment Report, 1997
3. S.Y. Choi, S.H Han et al., Development of Component Reliability Database for Korean NPPs, The 5th Korea-Japan PSA Workshop (1999)